

PORABLE TOTE FOR CUTTING AND WELDING EQUIPMENT

FIELD OF THE INVENTION

[0001] The present invention relates generally to cutting and welding equipment and more particularly to totes or carriers for transportation of the cutting and welding equipment.

BACKGROUND OF THE INVENTION

[0002] Portable cutting and welding equipment, and more specifically gas cutting and welding equipment, is often transported using a carrier or tote that houses the equipment. For gas cutting and/or welding applications, such equipment often includes two (2) cylinders, e.g., oxygen and acetylene, (which also include gas regulators), gas hoses, a torch, a striker, extra tips, nozzles, a soap stone, and welding rods, among other pieces of equipment. Such a carrier is disclosed in U.S. Patent No. 6,213,529, wherein the claimed two hinged halves of the carrier house cylindrical gas or fuel canisters. The carriers are frequently carried by hand from one work location to another and are also manipulated while at a single work location if the length of the gas hoses between the cylinders and the work piece is insufficient. Thus, a carrier with full cylinders and several pieces of related equipment can be heavy and cumbersome to transport within and between work locations.

[0003] More specifically, the gas hoses are often wrapped around the carrier in a loose fitting manner, which often leads to entanglement and

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inconvenience for the user. Additionally, the existing carriers often do not provide adequate provisions for storage of the torch during transport. Existing carriers are also bulky and cumbersome to manipulate in tight spaces and can become unstable and tip over in a variety of conditions, for example, where a user pulls or tugs on the hoses. Many loaded carriers also lack balance such that the carrier is difficult for a user to carry over any prolonged period. Moreover, many existing carriers lack adequate storage space and functionality for the multitude of equipment used for cutting and/or welding operations.

SUMMARY OF THE INVENTION

[0004] In one preferred form, the present invention provides a portable tote adapted for carrying cutting and welding equipment. The portable tote comprises a body defining an upper end portion, a lower end portion, and a center of gravity. Further, the tote comprises a central extension disposed between the upper end portion and the lower end portion that provides additional storage space. Additionally, an upper extension is disposed along the upper end portion and includes a handle that is positioned along the center of gravity of the portable tote for improved balance.

[0005] In another form, the present invention provides a portable tote comprising a body defining an upper end portion and a lower end portion and a central extension disposed between the upper end portion and the lower end portion, wherein the central extension provides additional storage space.

[0006] In yet another form of the present invention, a portable tote is provided that comprises a body defining an upper end portion and a lower end portion, and a water-resistant storage compartment extending between the upper end portion and the lower end portion.

[0007] In another form of the present invention, a portable tote is provided that comprises a body defining an upper end portion and a lower end portion, a first storage receptacle disposed at the lower end portion and configured to receive a cylinder, a second storage receptacle disposed at the lower end portion and adjacent the first storage receptacle, the second storage receptacle configured to receive another cylinder, and a storage holster disposed within the lower end portion and between the first storage receptacle and the second storage receptacle for securing a torch.

[0008] In another aspect of the present invention, a portable tote is provided that comprises a body defining an upper end portion and a lower end portion, and distal extensions disposed along the lower end portion, wherein the distal extensions provide stability when the portable tote is resting in a vertical position.

[0009] Further areas of applicability of the present invention will become apparent from the detailed description provided hereinafter. It should be understood that the detailed description and specific examples, while indicating the preferred embodiment of the invention, are intended for purposes of illustration only and are not intended to limit the scope of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The present invention will become more fully understood from the detailed description and the accompanying drawings, wherein:

[0011] Figure 1 is a front perspective view of a portable tote and related gas cutting equipment constructed in accordance with the principles of the present invention;

[0012] Figure 2 is a front perspective view of a portable tote without the related gas cutting equipment in accordance with the principles of the present invention;

[0013] Figure 3 is a rear perspective view of the portable tote in accordance with the principles of the present invention;

[0014] Figure 4 is an elevated side view of the portable tote and related gas cutting equipment in accordance with the principles of the present invention;

[0015] Figure 5 is an elevated side view of the portable tote without related gas cutting equipment in accordance with the principles of the present invention;

[0016] Figure 6 is an elevated top view of the portable tote in accordance with the principles of the present invention;

[0017] Figure 7 is an elevated front view of the portable tote in accordance with the principles of the present invention;

[0018] Figure 8 is an elevated rear view in accordance with the principles of the present invention; and

[0019] Figure 9 is an elevated bottom view of the portable tote in accordance with the principles of the present invention.

[0020] Corresponding reference numerals indicate corresponding parts throughout the several views of the drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] The following description of the preferred embodiments is merely exemplary in nature and is in no way intended to limit the invention, its application, or uses.

[0022] Referring to the figures, a portable tote according to the present invention is illustrated and generally indicated by reference numeral 20. As shown more clearly in Figures 1 and 4, the portable tote 20 is adapted for carrying cutting and welding equipment, and more specifically gas cutting equipment as illustrated herein. It should be understood that the illustration of gas cutting equipment is merely exemplary and should not be construed to limit the scope of the present invention. Accordingly, other types of cutting and welding equipment may also be carried by the portable tote 20 while remaining within the scope of the present invention. As shown, the gas cutting equipment generally comprises an oxygen cylinder 22 and oxygen gas regulator 24, an acetylene cylinder 26 and acetylene gas regulator 28, gas hoses 30, and a torch 32. The gas hoses 30 are not shown connected to the torch 32 for purposes of clarity. Other equipment may include, by way of example, extra tips 34 and a striker 36, which are not shown in their stowed positions in order to illustrate the configuration of such equipment.

[0023] The portable tote 20 comprises a body 50 that is preferably unitized, or one piece, which is further a plastic material and is fabricated using a blow molding process. However, the unitized body 50 may be formed using other processes known in the art and may alternately be more than one piece and assembled to form the configuration as shown and described herein while remaining within the scope of the present invention. The body 50 comprises an upper end portion 52 and a lower end portion 54, with an upper extension 56 disposed along the upper end portion 52 and a central extension 58 disposed between the upper end portion 52 and the lower end portion 54. As shown more clearly in Figures 4 and 5, the upper extension 56 is preferably canted inward and the central extension 58 is canted outward relative to a center of gravity 60 of the portable tote 20. With the central extension 58 canted outward, additional storage space is provided for the gas hoses 30 as shown, which are preferably wrapped around the cylinders 22 and 26 during transport. Additionally, with the upper extension 56 canted inward, additional protection from damage is provided for the gas regulators 24 and 28. As more clearly shown in Figures 7 and 8, the upper extension 56 defines a proximal end 62 and an opening 64 between the central extension 58 and the proximal end 62. The upper extension 56 is preferably tapered towards the centerline 66 as shown in order to provide a more compact design such that the portable tote 20 can be transported and stored more easily.

[0024] Additionally, a handle 70 is disposed on the proximal end 62 of the upper extension 56 and is positioned along the center of gravity 60 as best shown in Figure 4. Since the handle 70 is substantially aligned with the center of

gravity 60, the portable tote 20 is more balanced and can therefore be transported more easily by a user. It should be understood that the precise center of gravity of a loaded portable tote 20 changes with the shifting in position of individual cutting and welding equipment and with usage of the contents of the cylinders. Therefore, as used herein, the term "center of gravity" should be construed to include fluctuations in the precise center of gravity as the position and weight of individual pieces of equipment changes during use. Additionally, the handle 70 is preferably configured for ease and comfort and is relatively compact in size, therefore providing an ergonomic design and thus more comfortable transport of the portable tote 20 and its related equipment for the user. More specifically, the handle 70 preferably defines a scalloped lower surface 72 to accommodate fingers of the user and is relatively large in diameter compared with handles of other totes or carriers. Therefore, the user can easily grasp the portable tote 20 by inserting their fingers through the opening 64 at the proximal end 62 and engaging the handle 70.

[0025] As further shown in the figures, the portable tote 20 also comprises a plurality of water-resistant storage compartments 73, 74, and 76. The water-resistant storage compartments 73, 74, and 76 preferably extend between the upper end portion 52 and the lower end portion 54 as shown, however other configurations that are disposed on the portable tote 20 may also be employed while remaining within the scope of the present invention. The central water-resistant storage compartment 73 preferably defines a cylindrical configuration and comprises a hollow compartment 75 that is molded into the unitized body 50. The central water-resistant storage compartment 73 also comprises a lid 76 that is preferably

threaded onto an exterior portion as shown, however, other methods of attaching the lid 76 may also be employed while remaining within the scope of the present invention. Thus, the central water-resistant storage compartment 73 may house extra tips 34, among other types of cutting and welding equipment, as desired by the user. The outer water-resistant storage compartments 74 and 76 preferably define a configuration that is specifically designed in one form to accommodate pre-existing sleeves 78 that house welding rods. The sleeves 78 also comprise lids 80 and are thus water-resistant, and are slidably engaged within the outer water-resistant storage compartments 74 and 76 for ease of installation and removal. It should be understood that the size and configuration of the water-resistant storage compartments 74 and 76 may be adapted for other types of sleeves or inserts while remaining within the scope of the present invention. Accordingly, the hollow compartment 75 of the central water-resistant storage compartment 73 may also house a removable sleeve (not shown) that is slidably engaged within the compartment 74 for ease of installation and removal of spare equipment. Therefore, the portable tote 20 comprises a plurality of water-resistant compartments 73, 74, and 76 to protect the cutting and welding equipment from damage and wear during use and also to encapsulate such equipment and prevent the equipment from falling out of the portable tote 20 during transport and use.

[0026] Referring now to Figure 2, the portable tote 20 further comprises a first cylinder storage receptacle 82 and a second cylinder storage receptacle 84 disposed at the lower end portion 54. The first storage receptacle 82 is preferably configured for an acetylene cylinder, and the second storage receptacle 84 is

preferably configured for an oxygen cylinder, however, other receptacle configurations that correspond with different cylinders may also be employed while remaining within the scope of the present invention. As further shown, the portable tote 20 comprises a holster 86 that is disposed between the first storage receptacle 82 and the second storage receptacle 84. The holster 86 thus accommodates the torch 32 as more clearly shown in Figure 1, and the torch 32 is more securely stored for transport. As further shown in Figure 2, the portable tote 20 further comprises a holder 90 that is specifically configured for a striker 36 as shown. Therefore, the striker 36 is relatively secure and can be more easily transported.

[0027] The first cylinder storage receptacle 82 also defines a cutout 92 that provides an expansion location when inserting an acetylene cylinder. A typical acetylene cylinder comprises a weld joint at the bottom of the cylinder, which would increase the required size, or diameter, of the first cylinder storage receptacle 82 in order to accommodate the acetylene cylinder. Such an increased size would cause a loose fit between the acetylene cylinder and the first cylinder storage receptacle 82, and the acetylene cylinder would be relatively insecure during use. Without increasing the overall size of the first cylinder storage receptacle 82, the cutout 92 accommodates the weld joint, and the acetylene cylinder is thus more securely positioned within the first cylinder storage receptacle 82. Additionally, the cutout 92 is sized to accommodate additional cutting and welding equipment such as a welding rod tube (not shown), by way of example. As further shown, the first cylinder storage receptacle 82 and the second cylinder storage receptacle 84 are positioned on a sloped surface 94, best shown in Figures 4 and 5, which provides for

ease of installation and removal of the oxygen cylinder 22 and the acetylene cylinder 26.

[0028] Referring now to Figure 3, the portable tote 20 in another form further comprises recesses 96 formed along the rear portion that are adapted for mounting of wheels (not shown) if such wheels are desired by the user. An axle (not shown) for the wheels would slidably engage the recesses 96 and a cavity 98 as shown, and the wheels would mount to the ends of the axle. Additionally, the central extension 58 further comprises holes 100 that are configured for the insertion of a pull strap (not shown). Therefore, a user could grasp the pull strap rather than the handle 70 and transport the portable tote 20 more easily using the wheels in certain work environments. However, it should be understood that the use of the pull strap and the wheels are optional and should not be construed as limiting the scope of the present invention.

[0029] As further shown in Figures 8 and 9, the portable tote 20 also comprises distal extensions 102 that are preferably formed along the bottom of the lower end portion 54. The distal extensions 102 provide additional stability to the portable tote 20 when stored in a vertical position as shown. Additionally, the bottom of the portable tote 20 defines a recessed area 104 that defines a contour 105, which conforms to the shape of the cylinders as shown. Therefore, the recessed area 104 provides additional stability to the cylinders when stored within the portable tote 20.

[0030] Referring to Figures 2, 7, and 8, additional features of the portable tote 20 include longitudinal pockets 106 that provide additional rigidity to the

unitized body 50. Additionally, recessed spaces 108 are provided for decals (as illustrated in Figure 1) or other product markings as desired. The rear portion of the portable tote 20 further comprises a recessed handle 110, as best shown in Figures 3 and 8, for additional flexibility in manipulating the portable tote 20 during use. Thus a user can manipulate the portable tote 20 with both the handle 70 and the recessed handle 110.

[0031] Accordingly, a portable tote 20 is provided that is relatively compact, stable, and balanced for ease of use. Additionally, the portable tote 20 provides innovative storage solutions for the plurality of cutting and welding equipment that is transported during use. Moreover, the portable tote 20 provides additional protection of the cutting and welding equipment and is overall an efficient and ergonomic carrier for cutting and welding equipment.

[0032] The description of the invention is merely exemplary in nature and, thus, variations that do not depart from the substance of the invention are intended to be within the scope of the invention. Such variations are not to be regarded as a departure from the spirit and scope of the invention.